



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,000	06/29/2006	Zenta Sugawara	62533.00051	3943
32294	7590	02/22/2010	EXAMINER	
SQUIRE, SANDERS & DEMPSEY L.L.P.			KRAUSE, JUSTIN MITCHELL	
8000 TOWERS CRESCENT DRIVE				
14TH FLOOR			ART UNIT	PAPER NUMBER
VIENNA, VA 22182-6212			3656	
			MAIL DATE	DELIVERY MODE
			02/22/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/585,000	SUGAWARA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	JUSTIN KRAUSE	3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 October 2009.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-4,6 and 8 is/are rejected.
- 7) Claim(s) 5,7 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                              |                                                                   |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                             | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|                                                                                                              | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lande et al (US Patent 4,300,362) in view of Madhani et al (US Patent 5,797,900).

Lande discloses a joint structure to be connected to an assembly and a link of a robot comprising:

a first motor (13b) configured to cause the assembly to swing in a longitudinal motion with respect to the link (1),

a second motor (13c) configured to cause the assembly to swing in a lateral motion with respect to the link,

the first motor and second motor disposed so that the output shaft of the first motor and output shaft of the second motor are parallel to one another.

Lande does not disclose the first and second motor output shafts to be orthogonal to the robot link. Madhani teaches drive motors (M1-M5) for operating a robot joint which are arranged orthogonal to the robot link for the purpose of providing a robot joint which is dexterous, low friction, and low inertia (col. 1, line 19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lande to include drive motors arranged orthogonally to the robot link for the desired purpose of providing a dexterous, low friction and low inertia robot joint.

Further, one of ordinary skill in the art would recognize that the orientation of the motors is a matter of engineering design dependant on the particular output drive mechanism selected for use. The orientation of the motor is dependent on the selection of the gearbox or other power transmission device between the motor output shaft and the driven component. There are known power transmissions which would require the motor to be orthogonal to the robot link (for example, the cable driven system of Madhani, or a bevel gear transmission) in order for the device to function properly.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lande to include drive motors arranged orthogonal to the robot link, as the orientation of the motors is a matter of engineering design selection dependant on the power transfer device selected.

Regarding claim 2, Lande discloses a third motor (connected to pinion 20, not shown but described in col. 2, line 64 - col. 3, line 2), the output shaft of the third motor is shifted by a predetermined amount with respect to a central axis of rotary motion (the "predetermined amount" is the radius of pinion 20). Alternatively, Madhani discloses a third motor (M5), the output shaft being shifted by a predetermined amount with respect to a central axis of rotary motion.

Regarding claim 4, Madhani discloses a first rotary unit (18a, b) connected to the assembly, and a second rotary unit (22) configured to support the first rotary unit while allowing the rotation around a first axis of the first rotary unit (A), and a base (24), configured to support the second rotary unit while allowing the rotation around a first axis of the second rotary unit (B), wherein the first and second motors are disposed in the base (both Lande and Madhani disclose the motors disposed in the base).

Regarding claim 6, Madhani discloses a motor side pulley connected to an output shaft of the third motor (93), a driven pulley (90) connected to the base and configured to rotate the base around the central axis of the rotary motion, and a belt (C5) configured to transfer the rotation of the motor side pulley to the driven pulley.

Claims 3 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Lande in view of Madhani as applied to claims 1 and 2 above, and further in view of Iriyama (US Patent 5,732,599).

Lande discloses a moveable cover (8) configured to be rotatable with respect to at least one of the assembly and the robot link (the moveable cover is flexible, and is free to rotate as the assembly rotates relative to the robot link).

Lande does not disclose an elastic member configured to generate a force between the moveable cover and at least one of the assembly and the robot link, and place the moveable cover in a predetermined position.

Iriyama teaches an elastic member (27) configured to generate a force (sealing force) between a cover (c2) and a robot arm component for the purpose of sealing the robot joint against contaminants from the environment (col. 5, lines 25-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Lande to include an elastic member configured to generate a force between the moveable cover and one of the robot link and the assembly for the purpose of providing a sealing force which prevents contamination from the environment as taught by Iriyama.

Regarding claim 8, Iriyama discloses a contact face to which the elastic member is contactable is formed on the movable cover (see fig 5), and a stopper (the groove which the elastic member is fitted is a stopper) which contacts with the elastic member to control the range of rotation around the central axis of rotary motion of the moveable cover is provided at an inside periphery of the movable cover.

***Allowable Subject Matter***

Claims 5 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments filed October 26, 2009 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's arguments read the claims in light of the specification, the claims however, are given their broadest reasonable interpretation. Under the broadest reasonable interpretation, the combination applied above is readable on the present claims. The claims require the motors be "configured to rotate", there is no positive recitation of structure within this phrase, rather the claims recite functionally what the device does. Such a recitation provides minimal patentable weight.

While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a

device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

MPEP 2114.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN KRAUSE whose telephone number is (571)272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Justin Krause/  
Examiner, Art Unit 3656  
/Thomas R. Hannon/  
Primary Examiner, Art Unit 3656